

Figure 1 Survival function of ATCC cohort. ATCC, Ataxia Telangiectasia Clinical Center at Johns Hopkins Hospital.

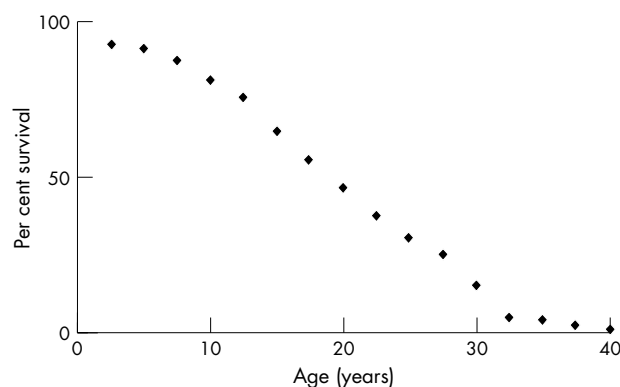


Figure 2 Per cent survival of ATCP cohort (bin width, 2.5 years). ATCP, Ataxia Telangiectasia Children's Project.

Correspondence to: Dr Thomas O Crawford, Pediatric Neurology, Johns Hopkins Hospital, Jefferson 123, 600 N Wolfe Street, Baltimore, MD 21287, USA; tcrawfo@jhmi.edu

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Authors' affiliations

T O Crawford, R L Skolasky, Department of Neurology, The Johns Hopkins Hospital, Baltimore, Maryland, USA
T O Crawford, K J Rosquist, H M Lederman, Department of Pediatrics, The Johns Hopkins Hospital
R Fernandez, Ataxia Telangiectasia Children's Project, Deerfield Beach, Florida, USA

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ARCHIVIST

Orphan diseases and orphan drugs: infant botulism and BIG-IV

The problem is that developing new treatments for rare diseases is not commercially attractive to drug companies. The response in the USA was the Orphan Drug Act of 1982. An orphan drug is defined as one produced with the aim of treating a disease that affects fewer than 200 000 people in the USA or one that will probably not produce a profit within 7 years of FDA approval. The Act provides for government encouragement and facilitation of research and the development of orphan drugs through provision of tax credits, grants, and a guaranteed 7 years of exclusive marketing. Since 1982, in all, 282 products have been developed in this way, many of them for paediatric use. They include treatments for type 1 tyrosinaemia, Fabry's disease, digitalis poisoning, and congenital growth hormone deficiency. Now a treatment for infant botulism has been developed under the provisions of the Act. (In the USA some 80–110 cases of infant botulism are recognised each year.) The new treatment, a human derived botulism antitoxin (Botulism Immune Globulin Intravenous, BIG-IV, BabyBIG), only available in the USA, has been evaluated in California (*New England Journal of Medicine* 2006;**354**:462–71; see also perspective article, *ibid*: 445–7).

In a multicentre study over a 61 month period (1992–97) a total of 122 infants with suspected, and later confirmed, infant botulism were randomised to BIG-IV or placebo. Treatment with BIG-IV reduced mean hospital stay from 5.7 to 2.6 weeks and dramatically reduced the durations of stay in intensive care, ventilation, and tube or intravenous feeding. Hospital charges were reduced by an average of US \$88 600 per patient. In the subsequent treatment of 382 cases nationwide the mean length of hospital stay was 2.2 weeks and earlier treatment was associated with shorter stays.

Orphan drug legislation has been enacted in the European Union, Australia, and Japan. (In a dramatic aside, the authors of this paper mention that botulinum toxin is currently categorised as a category A (maximum threat) biological weapon and, in order to supply the large amounts of antitoxin that might be needed, a recombinant product is being developed (presumably not under the orphan drug provisions)).